

WHAT IS CLAIMED IS:

5

1. A recording/reproducing apparatus that records and reproduces, over a partial response channel, a recording signal produced by encoding data according to a convolutional code and reproduces the data from a reproduction signal by iterative decoding using likelihood information, said recording/reproducing apparatus comprising:  
a burst error detector detecting a burst error part in the reproduction signal; and  
a substituting part substituting, for a sampling value included in the burst error part, a predetermined value according to a detected result of said burst error detector.

20

2. The recording/reproducing apparatus as claimed in claim 1, wherein the predetermined value is a value by which influence of the sampling value in the burst error part is not propagated, when performing the iterative decoding of the data by using likelihood information of a sample in a part other than the burst error part.

30

3. The recording/reproducing apparatus as claimed in claim 1, wherein the predetermined value is one of a sampling value and a likelihood information value with which a probability that a

data value obtained through the iterative decoding is "0" and a probability that a data value obtained through the iterative decoding is "1" become the same.

5

4. The recording/reproducing apparatus as claimed in claim 3, wherein the likelihood information is a value corresponding to data output from the partial response channel.

15

5. The recording/reproducing apparatus as claimed in claim 3, wherein the likelihood information corresponds to data output through decoding of the convolutional code.

20

6. The recording/reproducing apparatus as claimed in claim 1, wherein the burst error detector determines that a sample is included in the burst error part in one of the case wherein the sampling value is greater than a first detection level and the case wherein the sampling value is smaller than a second detection level, where the first detection level is higher than the second detection level.

25

30

35

7. The recording/reproducing apparatus as

claimed in claim 1, wherein the substituting part substitutes, after delaying the sampling value, the predetermined value for the sampling value according to a detected result of the burst error detector.

5

10           8. The recording/reproducing apparatus as claimed in claim 1, wherein the substituting part controls whether or not to substitute for the sampling value in accordance with the number of times of iteration of the iterative decoding.

15

          9. A recording/reproducing apparatus that  
20 records and reproduces, over a partial response channel, a recording signal produced by encoding data according to a convolutional code and reproduces the data from a reproduction signal by iterative decoding using likelihood information,  
25 said recording/reproducing apparatus comprising:  
          a burst error detector detecting a burst error part in the reproduction signal; and  
          a substituting part substituting for a sampling value including the burst error part  
30 through a predetermined operation.

35           10. The recording/reproducing apparatus as claimed in claim 9, wherein the predetermined operation reduces an amplitude of a signal of the

sampling value including the burst error part.

5

11. The recording/reproducing apparatus as claimed in claim 9, wherein the substituting part substitutes, after delaying the sampling value, for the sampling value through the predetermined operation according to a detected result of the burst error detector.

15

12. A method of substituting for a burst error part in a reproduction signal reproduced by a recording/reproducing apparatus that records and reproduces, over a partial response channel, a recording signal produced by encoding data according to a convolutional code and reproduces the data from the reproduction signal by iterative decoding using likelihood information, said method comprising the steps of:

25

detecting the burst error part in the reproduction signal; and

30

substituting, for a sampling value included in the burst error part, a predetermined value according to a detected result of the step of detecting the burst error part.

35

13. The method as claimed in claim 12, wherein the predetermined value is a value by which influence of the sampling value in the burst error

part is not propagated, when performing the  
iterative decoding of the data by using likelihood  
information of a sample in a part other than the  
burst error part.

5

14. The method as claimed in claim 12,  
10 wherein the predetermined value is one of a sampling  
value and a likelihood information value with which  
a probability that a data value obtained through the  
iterative decoding is "0" and a probability that a  
data value obtained through the iterative decoding  
15 is "1" become the same.